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VALIDATION OF THE PNS-Q-SELF AND THE PNS-Q-INFORMANT FOR THE
ASSESSMENT OF INSIGHT IN SCHIZOPHRENIA

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The research involving human participants that is reported in this thesis was conducted with the approval of the Institutional Review Board of Cleveland State University

See Appendix A for IRB Approval

VALIDATION OF THE PNS-Q-SELF AND THE PNS-Q-INFORMANT FOR THE
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JAIME L.DEYLING

ABSTRACT

The use of self-report measures in the assessment of schizophrenic patients has yielded mixed results because many patients lack insight. The Positive and Negative Symptoms Questionnaire (PNS-Q-Self) is a self-report measure for the assessment of insight in schizophrenia symptoms. The present study extended this measure by assessing an informant version of this scale, the PNS-Q-Informant. This was achieved by administering the PNS-Q-Self and the PNS-Q-Informant together with the McEvoy Vignettes (McEvoy, 1989). The results show that both the PNS-Q-Self and the PNS-Q-Informant exhibit high internal consistency for both positive and negative subscales. The correlations between the two scales were mixed, with a significant correlation between the positive scales, but not the negative scales. However, both questionnaires correlated highly with the McEvoy Vignettes. The results from the t-test show only two deficit areas in schizophrenic patients, one in positive symptoms and one in negative symptoms, which may be due to the stabilized population used for data collection. The results of this study suggest that the use of both PNS-Q scales is an economic manner for objectively assessing insight into symptoms of schizophrenic patients.

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CHAPTER I

INTRODUCTION

One of the main problems in the treatment of schizophrenic patients is their lack of insight and awareness (Dickerson et al, 1997). This issue leads to the delay in diagnosis and an increased burden on the individual, their family, and on the health care system. Insight is a complex construct that has various dimensions that are not strongly correlated, such as insight into illness, symptoms, and need for treatment (Amador & David, 2000).

Iancu et al (2005) published data on a self-report questionnaire, namely the Positive and Negative Symptoms Questionnaire (PNS-Q), intended to measure psychotic symptoms in patients with schizophrenia. This tool contained 68 items based on items from the Scale for Assessment of Positive Symptoms (SAPS) and the Scale for Assessment of Negative Symptoms (SANS) (Andreasen, 1983; 1984). The scale had high internal consistency for both positive (Cronbach's $\alpha = 0.88$) and negative (Cronbach's $\alpha = 0.89$) subscales. The PNS-Q correlated well with the McEvoy Vignettes, which is another self-awareness scale. The McEvoy scale (1993) consists of several vignettes describing in brief several positive symptoms and several negative symptoms. Participants respond on a scale of 1 (very much alike) to 5 (not alike) points

to indicate whether or not the person described is similar to himself or herself. Thus, a patient with high scores is argued to lack awareness of their symptoms.

Insight on the part of both patients and a caretaker or family member is thought to be an important factor influencing adherence to medication and treatment of patients with schizophrenia. In recent decades, there has been a change in psychiatric care from a more hospital-based system to a more community-based system. This change requires the family members of the patient to become more involved. Recent research on the insight of schizophrenic patients and that of a caretaker or family member is scarce. Foldemo, Ek, and Bogren (2004) conducted a study assessing the needs of the patient along with the perception of needs by a family member or staff member. They found that there was a disagreement between what the patient answered and what a caretaker perceived.

The aim of the present study is to validate the PNS-Q-Self with the PNS-Q-Informant. This is important for the greater picture of self-report measures in assessing schizophrenics coming for treatment. It is an objective way of evaluating symptoms. These measures also have great clinical and theoretical utility in assessing patients. The PNS-Q-Informant was designed as an attempt to address the limitations of the PNS-Q-Self. Mainly, the PNS-Q-Self only targeted the patient and not that of a family member or caretaker. High correlations between the two would indicate that the patient and the informant showed the same degree of insight. If they were found to be uncorrelated it would be assumed that what the patient perceives about his illness and what the informant perceives are not the same. This would either mean that the patient lacks insight into his illness or more unlikely, the informant lacks insight of the patient.

Another aim of this study is to shorten the PNS-Q. Since it is a self-report measure, shortening the questionnaire will make it both easier for the patients to complete, and a more reliable scale. This is important because with the current time constraints of clinicians, quicker assessments of symptoms will lead to faster evaluation and more time treating the patient.

CHAPTER II

LITERATURE REVIEW

Schizophrenia

The present study investigates schizophrenic patients and their ability to assess their own insight into their illness with the PNS-Q-Self measure. Their responses will then be correlated with a family member or caretaker of the patient using the PNS-Q-Informant measure. Results from earlier studies show the need for assessing insight from more than one perspective (Foldemo, Ek, & Bogren, 2004, Ho et al., 2004, Chen et al., 2005, Wilson et al., 2000).

Schizophrenia is a serious mental disorder that afflicts approximately 1% of the population in every culture (Martin, Miller, & Kotzan, 2001). The term schizophrenia was coined in 1911 by Swiss psychiatrist Eugen Bleuler meaning “splitting of the mind”. This disorder has been widely misunderstood across time. Some people believe that the disease is characterized by multiple personalities or that the disease heightens creativity. However, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), accurate diagnosis of schizophrenia must include two of the following: (1) delusions, which are fixed false beliefs; (2) hallucinations, which are sensory perceptual distortions such as visual, auditory, olfactory things that others do not

sense and that do not exist outside one's perception; (3) disorganized speech; (4) catatonic behavior; or (5) negative symptoms which can included but are not limited to affective flattening, alogia, or avolition. Alogia means poverty of thinking which normally is related to the person's speech. Avolition is the absence of initiative or motivation to begin behaviors.

Assessing Schizophrenics

Currently, the two most popular methods for assessing schizophrenic patients are interview-based and self-report measures. Interview-based measures are rarely done except in research areas because physicians are unable to spend a great deal of time with each patient. The 30-item Positive and Negative Syndrome Scale (PANSS) is an interview-based measure (Kay et al., 1987). The PANSS assesses positive, negative, and general psychopathology symptoms. Trained clinicians rate the symptoms during the interview. The Scale for Assessment of Positive Symptoms (SAPS) and the Scale for the Assessment of Negative Symptoms (SANS) are two other structured interview assessments. Interview-based measures do not give the patients the ability to rate their own illness, and they also contain inter-rater variability. These measures generally include some bias because the ratings by the interviewer can only be educated assumptions (Baier et al., 1998).

Brief tools for the assessment of schizophrenia such as self-report measures are becoming increasingly important. Self-report measures can further assess aspects of insight that interview-based measure cannot. These include self-reflectiveness about unusual experiences and the capacity to correct erroneous judgments (Cooke et al., 2005). The validity of self-report measures with schizophrenic patients is questionable because

of patients' lack of insight into their illness. Self-report measures are already used with most other disorders except schizophrenia because researchers and clinicians doubt the validity of the patients self-report. However, according to Bell et al. (2007), a self-report measure may be valid for many domains of personality and symptoms even when the schizophrenic patient lacks insight.

According to Iancu et al. (2005), there are many reasons for using a self-report measure when assessing a patient with psychosis. First, it can lead to a quicker evaluation and save clinicians' time and money. Secondly, it can help avoid inter-rater variability and clinician bias. Finally, it will help the patients' understanding of their symptoms, which is very important for symptom management (2005).

The use of self-report measures in assessing insight in schizophrenic patients has yielded very different results. McEvoy et al. (1993) showed that acutely psychotic individuals with schizophrenia could possess intact insight. Lirud et al. (2004) reported that regardless of the level of insight the patient had, they were able to report positive and negative symptoms accurately. In contrast, Doyle et al. (1999) found that patients with poor insight were less likely to report accurately. Bell et al. (2007) also found that those patients with higher insight were likely to report their experiences more accurately. Hemera et al. (1996), found that schizophrenic patients were able to assess their psychotic and non-psychotic symptoms, but had difficulty assessing their negative symptoms and deficit-related symptoms.

The use of a self-report measure would benefit greatly from another's perspective. According to Cooke et al. (2005), it has long been recognized that many psychotic individuals disagree with physicians and family members on the severity of their mental

illness. Bell et al. (2007) reports that there are very few studies examining the correlation between patients' ratings and informants' ratings. Moreover, in the little research that has been done on this topic, the results are inconsistent and unclear. Kemmler et al. (1997) found that caretakers tended to rate the patient at a lower level of functioning than the patients rated themselves. Similarly, Ho et al. (2004) reported that participants' reports of symptoms were significantly lower than those established by other sources of history. On the other hand, Sneeuw et al. (2002) found moderate to good levels of patient-caretaker agreement in their assessment. Becchi et al. (2004) found that when the caretaker was a family member, rather than a non-relative (i.e. staff member), the relative was a better judge of the patient's quality of life.

Insight in Schizophrenia

As stated previously, the present study is designed to investigate insight in schizophrenic patients. Lack of insight is the single most common symptom in acute schizophrenia (World Health Organization, 2001). Initially, insight was described as a binary "all or nothing" phenomenon (Cooke et al., 2005). This meant an individual either possessed or lacked knowledge in their illness. It is now described as a multidimensional, continuous variable (David & Kemp, 1997). According to Mutsatsu et al. (2006), lack of insight is associated with poor clinical outcome, poor social functioning, and a greater number of hospital admissions. In other words, a lack insight is the inability to due self-introspection regarding affect, behavior, and cognition such that you have a discrepancy in how you perceive those three constructs and how others perceive you functioning in those three realms.

Jaspers first wrote about insight in 1913 (Amador & David, 1998). He pointed out that many patients with psychotic symptoms lacked awareness to their illness. After Jasper's text in 1913, insight was not discussed again until 1934 when Lewis published a lengthy essay on the topic. He saw insight as, "...a correct attitude toward a morbid change in oneself." McEvoy (1993) was one of the first to develop a questionnaire to assess insight in schizophrenic patients. Empirical studies of insight in schizophrenia did not begin until the 1960s (Amador & David, 1998), and by the 1990s there were at least three standard rating scales of insight available.

There are three main theories involving the etiology of poor insight in schizophrenic patients. According to Collins et al. (1997), lack of insight is a psychological defense mechanism to protect against accepting that one has a mental illness. Lysaker and Bell (1994) conclude that poor insight has a neuropsychological locus and results from neurocognitive deficits. The clinical theory views poor insight as a primary symptom of schizophrenia itself. Cuesta and Peralta (1994) propose that poor insight arises directly from the illness. These theories are not necessarily mutually exclusive. Indeed, Baier et al. (1998) theorize that insight in schizophrenia may be related to the combination of factors mentioned in these three theories.

Research with insight and clinical symptoms, both positive and negative remains inconclusive. For example, whereas Berman et al. (1986) concluded that positive and negative symptoms showed a trend toward direct correlation, other researchers have found different patterns of results regarding insight and positive and negative symptoms. Inconsistent results in studies can be reflective of a number of things, including the lack of a universal definition of insight, different assessment measures, and the variation of

insight during the course of the illness (Mutsatsa et al., 2006; Baier et al. (1998). Collins et al. (1997) found that the most significant associations and predictions of insight were related to the positive symptoms and that there was no significant relationship between negative symptoms and insight. Similarly, Amador et al. (1994), found that negative symptoms were not significantly correlated with awareness of illness. Furthermore, Carroll et al. (1999) found more severe symptoms predicted worse insight. Consequently, it is hypothesized that there will be a greater lack of insight for negative symptoms than positive symptoms in the present study.

Research Purpose

The following research questions will be explored in the present study: (1) Is there a correlation between the PNS-Q-Self and the PNS-Q-Informant? (2) Is there a difference in insight for positive and negative symptoms? Based on previous findings, it is predicted that there will be discrepancies between the PNS-Q-Self and the PNS-Q-Informant. More specifically, it is predicted that lack of insight will be greater for negative symptoms than positive symptoms.

Measures

The PNS-Q-Self (Appendix B)

The PNS-Q-Self is a 68-item questionnaire of true/false format based on the SAPS/SANS subscales and rephrased into simple sentence. The questionnaire is read to the patient and they are asked to respond to each item. The participant is asked to report whether the item was present in the last month. A score of 1 point is given for each

positive reply (i.e., the symptom is present) and a score of 0 points is given for each negative reply (i.e., the symptom is absent). The questionnaire is broken into 10 different subscales, five positive and five negative. The positive subscales include question items that deal with hallucinations (P1), delusions (P2), thought disorder (P3), bizarre/disorganized behavior (P4), and inappropriate affect (P5). The negative subscales consists of question items that deal with restricted affect (N1), alogia/reduced speech (N2), avolition/apathy (N3), asociality/anhedonia (N4), and reduced attention (N5).

The PNS-Q-Informant (Appendix C)

The PNS-Q-Informant is a 68-item questionnaire of true/false format that is intended for the caretaker of a patient. It was derived from the PNS-Q-Self and changed into he/she (i.e., third person) format. The questionnaire consists of items that describe various situations and experiences that the patient might have in daily life. The informant is asked to answer whether the patient has recently experienced any of the situations. A score of 1 point is given for each true response, and a score of 0 points is given for each false response.

The McEvoy Vignettes (Appendix D)

The McEvoy Vignettes are a self-report tool that consists of several vignettes describing in brief eight stories that are written in everyday language that provided classical positive and negative features of schizophrenia. Patients are read the vignettes and are asked to respond on a scale of 1 (very much alike) to 5 (not alike) whether or not the person described in the vignette is similar to himself or herself.

CHAPTER III

METHOD

Participants

The sample included 40 participants from a local outpatient community mental health center. The patients' mean age was 45 years with a range between 25 and 63. The majority of the sample was males (60%). The mean education length was 12.13 years (see Table 1). The patients' diagnoses were schizophrenia (60%), schizoaffective (25%), and paranoid schizophrenia (15%). A nurse or caseworker of the mentally ill participant was also interviewed.

Table 1

Participants' Demographics

	Mean	Std. dev	Mode	Min	Max
Age	45	9.979	47	25	63
Education	12.13	1.4176	12	8	16

Apparatus

The measures used for this study included the PNS-Q-Self, the PNS-Q-Informant, and the McEvoy vignettes.

Procedure

The experimenter gained access to the participants through the Cuyahoga County Mental Health Board (CCMHB). Each participant read the informed consent statement (Appendix E), and then the researcher instructed the participant to answer a series of questions (Appendix F) about the information on the informed consent before they could sign the form. The questionnaire about the informed consent was used to ensure the patient understood what they were signing. After the informed consent was signed, the patient was assigned a study number. This number was written on each participant's study measures. The participants were then interviewed as regards to demographic data. The examiner then instructed the participant on how to complete the PNS-Q-Self and provided any assistance if needed. Next, the examiner read with them the McEvoy Vignettes, and the participant rated the vignettes. Finally, a nurse or caseworker of each participant was asked to sign the informed consent statement (Appendix G) and complete the PNS-Q-Informant.

CHAPTER IV

RESULTS

In order to test the internal reliability of the PNS-Q-Self subscales, a reliability analysis was run for both the positive and negative subscales (see Table 2). The internal consistency was based on an average inter-item correlation. The negative 4 subscale produced low reliability, so questionnaire item number 13 was dropped, which then gave the subscale an alpha of .59. The questionnaire exhibits high internal consistency for both the positive (alpha = .94) and negative (alpha= .90) subscales.

Table 2
Internal reliability of the PNS-Q-Self subscales

Scale	No. of items	Alpha
P1	6	.84
P2	9	.87
P3	7	.67
P4	6	.79
P5	5	.59
Sum Positive	33	.94
N1	7	.57
N2	6	.67
N3	8	.70
N4	7	.59
N5	6	.81
Sum Negative	34	.90

A reliability analysis was also run on the PNS-Q-Informant (see Table 3). The internal consistency was based on an average inter-item correlation. Question number 13 in the negative 4 subscale was also dropped in this questionnaire to remain consistent with previous findings. The questionnaire displays high internal consistency for both the positive ($\alpha=.93$) and negative ($\alpha=.94$) subscales.

Table 3
Internal reliability of the PNS-Q-Informant subscales

Scale	No. of items	Alpha
P1	6	.89
P2	9	.85
P3	7	.53
P4	6	.88
P5	5	.62
Sum positive	33	.93
N1	7	.80
N2	6	.89
N3	8	.82
N4	7	.74
N5	6	.82
Sum negative	34	.94

In order to test the first hypothesis that there will be discrepancies between the PNS-Q-Self and the PNS-Q-Informant, a Pearson Correlation was conducted (see Table 4). The PNS-Q-Self and the PNS-Q-Informant highly correlated in relation to the positive symptoms ($r=.46^{**}$), whereas the negative symptom subscale did not correlate ($r=.24$). Thus, the questionnaires differentiated between the different subscales.

Table 4
Correlations between the PNS-Q-Self and other scales

Scale	PNS-Q-Self Positive	PNS-Q-Self Negative
PNS-Q- Informant positive	r= 0.46**	
PNS-Q- Informant negative		r= 0.24
McEvoy's Vignettes	r= -0.73**	r= -0.75**

* p < .05

** p < .01

In order to test the next hypothesis that the lack of insight will be greater for negative symptoms than positive symptoms, a paired samples t-test was conducted (see Table 5). The findings show that there is a statistically significant difference between the two questionnaires on the positive 2 (P2) subscale, demonstrating that symptoms of delusions are not insightful in patients. In regards to the negative subscales, results show a statistically significant difference between the questionnaires on the negative 1 (N1) subscale, demonstrating that symptoms of restricted affect are not insightful in patients compared to the informant sample.

Table 5
Paired Samples Test

	N	Sig.
P1	40	.90
P2	40	.00*
P3	40	.61
P4	40	.50
P5	40	.60
N1	40	.05*
N2	40	.95
N3	40	.20
N4	40	.14
N5	40	.25
p < 0.05		

The correlation between the PNS-Q-Self and the McEvoy Vignettes (see Table 4), a measure of self-perception of symptoms, was high ($r = -.73^{**}$ and $-.75^{**}$ for the positive and negative symptoms, respectively). The negative correlations resulted from the construct of the McEvoy's scale, where high scores indicate denial of similarity to the vignette described.

Finally, a non-parametric ANOVA, Kruskal Wallis, was run based on the three different diagnoses of the sample (see Table 6). This test was used to examine the equality of population medians among the groups. Although the results failed to reach statistical significance, the results showed that the participants diagnosed with schizoaffective disorder consistently ranked lower than the other two disorders.

Table 6
Ranks

		N	Mean Rank
McEvoy	Schizophrenia	24	19.92
	Schizoaffective	10	23.80
	Paranoid	6	17.33
PosSelf	Schizophrenia	24	19.71
	Schizoaffective	10	18.80
	Paranoid	6	26.50
NegSelf	Schizophrenia	24	20.60
	Schizoaffective	10	20.10
	Paranoid	6	20.75
PosOther	Schizophrenia	24	21.88
	Schizoaffective	10	15.35
	Paranoid	6	23.58
NegOther	Schizophrenia	24	21.67
	Schizoaffective	10	15.05
	Paranoid	6	24.92

CHAPTER V

DISCUSSION

The current study is one of the few attempts in the literature to evaluate insight into positive and negative symptoms in schizophrenic patients, using both a self-report measure and a corresponding informant measure. The results support the original hypothesis that there would be discrepancies between the PNS-Q-Self and the PNS-Q-Informant. In particular, positive symptom subscales correlated highly between the two measures. However, there was no significant correlation between the two questionnaires on the negative symptom subscales. Therefore, there is a disparity between self-report and informant measures of schizophrenic patients, particularly for negative symptoms. These findings are consistent with McEvoy et al. (1993), who found that patients evaluate their positive symptoms more accurately than negative symptoms. The McEvoy scale also correlated highly with the PNS-Q-Self, as found in the previous study on these scales. Results of the study indicate that delusions and restricted affect are the only significant symptoms where patients lack insight. This study will need to be replicated because the informant might not have known the patient well enough to objectively answer the questionnaire. However, it is important to note that this study was looking to assess the reliability and validity of the scales. In the future, if there are no differences

found between the measures, the PNS-Q-Self would still be a good measure for self-report.

The second hypothesis, that lack of insight would be greater for negative symptoms than positive symptoms, was not supported. Patients in this study seemed to equally lack in positive and negative symptoms. A plausible explanation for these findings is that the participants were all stabilized schizophrenics, which may be related to more insight on their part. The majority of the sample had a 12th grade education (std. dev= 1.4) and quite possibly could be more educated on their illness.

Based on the Kruskal Wallis statistical test, it found that patients diagnosed with schizoaffective disorder consistently ranked lower than patients diagnosed with either schizophrenia or paranoid schizophrenia (although this effect failed to reach statistical significance), suggesting that their lack of insight was lower than the other participants. These results are inconsistent with previous findings in the literature. Pini et al. (2001) found that in-patients diagnosed with schizophrenia had poorer insight than patients with schizoaffective or any other disorder with psychotic features. Contrary to expectations, the participants diagnosed with paranoid schizophrenia ranked highest on the PNS-Q-Self. One would think that paranoid patients would hold back in the responding of their symptoms. However, as Candido and Romney (2002) found, patients diagnosed with paranoid schizophrenia reported more negative symptoms rather than less.

There are three important limitations in this study. First, the results may be limited to the sample of participants used. Participants were taken from a local outpatient mental health center where they attended daily educational groups. Patients may have been higher functioning, and therefore more insightful into their illness, than other

samples of patients. Second, all informant questionnaires were filled out by a nurse or caseworker of the patient and, as Becchi et al. (2004) reported, closer relatives are better judges of symptoms. Finally, sample size compared to the original study was quite lower, possibly yielding different results.

One of issues that have not been addressed in the literature is the matter of self-report, depression, and schizophrenia. A depressed individual might answer many of the negative symptoms questions in the same manner as a patient diagnosed with schizophrenia. However, this is typically not a concern because the diagnosis of schizoaffective implies that the patient may have depressive symptoms. Future studies of the PNS-Q could benefit from the addition of depression and anxiety subscales in order to improve clinical utility of the measure, which is important for medication and treatment. Future studies involving the PNS-Q-Self and PNS-Q-Informant would benefit from a more diverse sample, and the inclusion of an inpatient population. Also, reducing the number of items in the questionnaire would enable the participants to fill out the measure with more ease, which is important because many schizophrenics have difficulty reading and answering long questionnaires. The use of these self-report measures may lead to quicker evaluation of the patient in a more economic matter.

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APPENDICES

Appendix A



Cleveland State University

College of Graduate Studies and Research

Office of Sponsored Programs and Research

Institutional Review Board (IRB)

Memorandum

To: Amir Poreh
Department of Psychology

From: Barbara Bryant
IRB Recording Secretary

Date: July 30, 2007

Re: Results of IRB Review of your project number: 27148-POR-HS
Co-Investigator: Jaime Deyling
Entitled: *Validation of the PANS-Q Self and PANS-Q Informant for the Assessment of Insight in Schizophrenic Patients*

The IRB has reviewed and approved your application for the above named project, under the category noted below. Approval for use of human subjects in this research is for one year from today. If your study extends beyond this approval period, you must again contact this office to initiate an annual review of this research.

By accepting this decision, you agree to notify the IRB of: (1) any additions to or changes in procedures for your study that modify the subjects' risk in any way, and (2) any events that affect that safety or well-being of subjects.

Thank you for your efforts to maintain compliance with the federal regulations for the protection of human subjects.

Approval Category:

Date: July 25, 2007

 X Full IRB

cc: Project file

Mailing Address: 2121 Euclid Avenue, KB 1150 • Cleveland, Ohio 44115-2214
Campus Location: Keith Building, Room 1150 • 1621 Euclid Avenue • Cleveland, Ohio
(216) 687-3630 • Fax (216) 687-9382

Appendix B

The PNS-Q: A Self-Report Questionnaire

This questionnaire consists of items that describe various thoughts and experiences that individuals may have. Please read every item and respond whether or not you have recently had such thoughts and/or experiences.

1	P1	Sometimes I hear my thoughts inside my head.	<input type="radio"/> True <input type="radio"/> False
2	N1	People tell me that my tone of voice does not reflect my real feelings.	<input type="radio"/> True <input type="radio"/> False
3	N2	My train of thought is frequently interrupted.	<input type="radio"/> True <input type="radio"/> False
4	P2	I believe that others are capable of reading my thoughts.	<input type="radio"/> True <input type="radio"/> False
5	N3	Frequently, I do nothing.	<input type="radio"/> True <input type="radio"/> False
6	N4	I feel that my sexual drive has decreased.	<input type="radio"/> True <input type="radio"/> False
7	P3	I often repeat the same sentences.	<input type="radio"/> True <input type="radio"/> False
8	N5	While doing things, I have trouble concentrating.	<input type="radio"/> True <input type="radio"/> False
9	P4	I have good ideas, but I have difficulty focusing on them.	<input type="radio"/> True <input type="radio"/> False
10	P1	I hear voices inside my head.	<input type="radio"/> True <input type="radio"/> False
11	P5	People sometimes do not comprehend why I am so happy or sad.	<input type="radio"/> True <input type="radio"/> False
12	P2	I often think about creatures from outer space that want to conquer the Planet Earth.	<input type="radio"/> True <input type="radio"/> False
13	N1	I usually do not outwardly express my feelings.	<input type="radio"/> True <input type="radio"/> False
14	P3	I often feel anger or shout without any trigger.	<input type="radio"/> True <input type="radio"/> False
15	N2	When people ask me questions, I cannot find the strength to respond.	<input type="radio"/> True <input type="radio"/> False
16	P4	People tell me that my ideas are disorganized or confused.	<input type="radio"/> True <input type="radio"/> False

			False
17	N3	Sometimes I just stare.	<input type="radio"/> True <input type="radio"/> False
18	P5	When I see a happy movie, I sometimes look sad.	<input type="radio"/> True <input type="radio"/> False
19	N1	I have difficulty maintaining eye contact with others.	<input type="radio"/> True <input type="radio"/> False
20	P1	Sometimes I hear voices that say bad or good things about me.	<input type="radio"/> True <input type="radio"/> False
21	N3	I tend to be inactive.	<input type="radio"/> True <input type="radio"/> False
22	N4	My sexual drive is less than in the past.	<input type="radio"/> True <input type="radio"/> False
23	P2	I receive secret messages from the TV or the radio.	<input type="radio"/> True <input type="radio"/> False
24	N5	I have trouble concentrating.	<input type="radio"/> True <input type="radio"/> False
25	P3	My clothes are not clean.	<input type="radio"/> True <input type="radio"/> False
26	P1	Several times I have seen things that others cannot see.	<input type="radio"/> True <input type="radio"/> False
27	P4	While talking, my speech is not organized and I often switch topics (from one subject to another).	<input type="radio"/> True <input type="radio"/> False
28	P2	My (mental) disorder has a specific philosophical meaning.	<input type="radio"/> True <input type="radio"/> False
29	P5	I frequently laugh without any reason.	<input type="radio"/> True <input type="radio"/> False
30	P3	I have difficulty sitting still.	<input type="radio"/> True <input type="radio"/> False
31	N1	When others laugh from jokes on TV, I usually do not.	<input type="radio"/> True <input type="radio"/> False
32	P4	I have trouble thinking as logically as I once did.	<input type="radio"/> True <input type="radio"/> False
33	N1	I cannot enjoy or be enthusiastic about things.	<input type="radio"/> True <input type="radio"/> False
34	N2	People say that my speech is vague, unclear.	<input type="radio"/> True <input type="radio"/> False
35	N4	I feel distant from all people.	<input type="radio"/> True <input type="radio"/> False

36	N3	I have difficulties finishing my work.	<input type="radio"/> True <input type="radio"/> False
37	N5	I sometimes look too much at details and then lose track of my thoughts.	<input type="radio"/> True <input type="radio"/> False
38	N4	I prefer being alone.	<input type="radio"/> True <input type="radio"/> False
39	P1	Sometimes I get orders from voices that are being broadcasted to me.	<input type="radio"/> True <input type="radio"/> False
40	N5	I have trouble concentrating while reading.	<input type="radio"/> True <input type="radio"/> False
41	P2	I have committed a sin and this is unforgivable.	<input type="radio"/> True <input type="radio"/> False
42	P2	The medication I receive has special powers.	<input type="radio"/> True <input type="radio"/> False
43	N3	If it were up to me, I would rarely change my clothes.	<input type="radio"/> True <input type="radio"/> False
44	P3	Sometimes people easily annoy me.	<input type="radio"/> True <input type="radio"/> False
45	P3	Sometimes I get into trouble due to my sexual behavior.	<input type="radio"/> True <input type="radio"/> False
46	N1	I often do not know what I am feeling.	<input type="radio"/> True <input type="radio"/> False
47	P4	People have difficulty understanding my speech.	<input type="radio"/> True <input type="radio"/> False
48	N2	I often do not know what to answer when asked a question.	<input type="radio"/> True <input type="radio"/> False
49	P5	Sometimes I laugh because of the voices I hear.	<input type="radio"/> True <input type="radio"/> False
50	N3	People might say that I am not interested in many things.	<input type="radio"/> True <input type="radio"/> False
51	N1	People say that I look "frozen".	<input type="radio"/> True <input type="radio"/> False
52	N4	People say that I am a loner.	<input type="radio"/> True <input type="radio"/> False
53	N2	When people ask me questions, I answer them only after considerable delay.	<input type="radio"/> True <input type="radio"/> False
54	N5	When I listen to others, I sometimes lose track of my thoughts.	<input type="radio"/> True <input type="radio"/> False
55	N3	Others say that my body odor is bad.	<input type="radio"/> True <input type="radio"/> False

			False
56	P2	Some individuals on the unit are in fact FBI workers.	<input type="radio"/> True <input type="radio"/> False
57	N4	I do not have friends.	<input type="radio"/> True <input type="radio"/> False
58	N2	Sometimes I cannot finish the sentence I just started.	<input type="radio"/> True <input type="radio"/> False
59	N5	Others say that I am not attentive to my surroundings.	<input type="radio"/> True <input type="radio"/> False
60	N3	Others say that I spread around bad smells.	<input type="radio"/> True <input type="radio"/> False
61	P1	Sometimes I hear strange voices.	<input type="radio"/> True <input type="radio"/> False
62	N4	I have difficulty starting a conversation with other people.	<input type="radio"/> True <input type="radio"/> False
63	P2	People broadcast thoughts inside my head.	<input type="radio"/> True <input type="radio"/> False
64	P2	People from outer space control my thoughts.	<input type="radio"/> True <input type="radio"/> False
65	P3	Others say that my clothes are not tidy.	<input type="radio"/> True <input type="radio"/> False
66	N4	If I were invited to a party, I would go to it.	<input type="radio"/> True <input type="radio"/> False
67	P4	I have difficulty explaining myself.	<input type="radio"/> True <input type="radio"/> False
68	P5	Sometimes others do not understand why I laugh.	<input type="radio"/> True <input type="radio"/> False

Appendix C

The PNS-Q: A Nurse / Family Member Questionnaire

This questionnaire consists of items that describe various situations and experiences that your patient/family member might have in daily life. Please read every item and respond whether he/she has recently had such an experience.

1	P1	Sometimes he/she hears his/her thoughts inside his/her head.	<input type="radio"/> True <input type="radio"/> False
2	N1	People tell him/her that his/her tone of voice does not reflect his/her real feelings.	<input type="radio"/> True <input type="radio"/> False
3	N2	His/her train of thought is frequently interrupted.	<input type="radio"/> True <input type="radio"/> False
4	P2	He/She believes that others are capable of reading his/her thoughts.	<input type="radio"/> True <input type="radio"/> False
5	N3	Frequently, he/she does nothing.	<input type="radio"/> True <input type="radio"/> False
6	N4	He/She feels that his/her sexual drive has decreased.	<input type="radio"/> True <input type="radio"/> False
7	P3	He/She often repeats the same sentences.	<input type="radio"/> True <input type="radio"/> False
8	N5	While doing things, he/she has trouble concentrating.	<input type="radio"/> True <input type="radio"/> False
9	P4	He/She has good ideas, but he/she has difficulty focusing on them.	<input type="radio"/> True <input type="radio"/> False
10	P1	He/She hears voices inside his/her head.	<input type="radio"/> True <input type="radio"/> False
11	P5	People sometimes do not comprehend why he/she is so happy or sad.	<input type="radio"/> True <input type="radio"/> False
12	P2	He/She often thinks about creatures from outer space that want to conquer the Planet Earth.	<input type="radio"/> True <input type="radio"/> False
13	N1	He/She usually does not outwardly express his/her feelings.	<input type="radio"/> True <input type="radio"/> False
14	P3	He/She often feels anger or shouts without any trigger.	<input type="radio"/> True <input type="radio"/> False
15	N2	When people ask him/her questions, he/she cannot find the strength to respond.	<input type="radio"/> True <input type="radio"/> False
16	P4	People tell him/her that his/her ideas are disorganized or confused.	<input type="radio"/> True <input type="radio"/> False

			False
17	N3	Sometimes he/she just stares.	<input type="radio"/> True <input type="radio"/> False
18	P5	When he/she sees a happy movie, he/she sometimes looks sad.	<input type="radio"/> True <input type="radio"/> False
19	N1	He/She has difficulty maintaining eye contact with others.	<input type="radio"/> True <input type="radio"/> False
20	P1	Sometimes he/she reports hearing voices that say bad or good things about him/her.	<input type="radio"/> True <input type="radio"/> False
21	N3	He/She tends to be inactive.	<input type="radio"/> True <input type="radio"/> False
22	N4	His/her sexual drive is less than in the past.	<input type="radio"/> True <input type="radio"/> False
23	P2	He/She reports receiving secret messages from the TV or the radio.	<input type="radio"/> True <input type="radio"/> False
24	N5	He/She has trouble concentrating.	<input type="radio"/> True <input type="radio"/> False
25	P3	His/her clothes are not clean.	<input type="radio"/> True <input type="radio"/> False
26	P1	Several times he/she has reported seeing things that others cannot see.	<input type="radio"/> True <input type="radio"/> False
27	P4	While talking, his/her speech is disorganized and he/she often switches topics (from one subject to another).	<input type="radio"/> True <input type="radio"/> False
28	P2	He/She reports that his/her (mental) disorder has a specific philosophical meaning.	<input type="radio"/> True <input type="radio"/> False
29	P5	He/She frequently laughs for no reason.	<input type="radio"/> True <input type="radio"/> False
30	P3	He/She has difficulty sitting still.	<input type="radio"/> True <input type="radio"/> False
31	N1	When others laugh from jokes on TV, he/she usually does not.	<input type="radio"/> True <input type="radio"/> False
32	P4	He/She has trouble thinking as logically as he/she once did.	<input type="radio"/> True <input type="radio"/> False
33	N1	He/She does not seem to enjoy or be enthusiastic about things.	<input type="radio"/> True <input type="radio"/> False
34	N2	People say that his/her speech is vague, unclear.	<input type="radio"/> True <input type="radio"/> False
35	N4	He/She feels distant from all people.	<input type="radio"/> True <input type="radio"/> False

36	N3	He/She has difficulties finishing his/her work.	<input type="radio"/> True <input type="radio"/> False
37	N5	He/She sometimes looks too much at details and then loses track of his/her thoughts.	<input type="radio"/> True <input type="radio"/> False
38	N4	He/She prefers being alone.	<input type="radio"/> True <input type="radio"/> False
39	P1	Sometimes he/she gets orders from voices.	<input type="radio"/> True <input type="radio"/> False
40	N5	He/She has trouble concentrating while reading.	<input type="radio"/> True <input type="radio"/> False
41	P2	He/She feels that he/she has committed a sin that is unforgivable.	<input type="radio"/> True <input type="radio"/> False
42	P2	The medication he/she receives has special powers.	<input type="radio"/> True <input type="radio"/> False
43	N3	If it were up to him/her, he/she would rarely change his/her clothes.	<input type="radio"/> True <input type="radio"/> False
44	P3	Sometimes people easily annoy him/her.	<input type="radio"/> True <input type="radio"/> False
45	P3	Sometimes he/she gets into trouble due to his/her sexual behavior.	<input type="radio"/> True <input type="radio"/> False
46	N1	He/She frequently does not know what he/she is feeling.	<input type="radio"/> True <input type="radio"/> False
47	P4	People have difficulty understanding his/her speech.	<input type="radio"/> True <input type="radio"/> False
48	N2	He/She often does not know what to answer when asked a question.	<input type="radio"/> True <input type="radio"/> False
49	P5	Sometimes he/she laughs because of the voices he/she hears.	<input type="radio"/> True <input type="radio"/> False
50	N3	People might say that he/she is not interested in many things.	<input type="radio"/> True <input type="radio"/> False
51	N1	People say that he/she looks "frozen".	<input type="radio"/> True <input type="radio"/> False
52	N4	People might say that he/she is a loner.	<input type="radio"/> True <input type="radio"/> False
53	N2	When people ask him/her questions, he/she answers them only after considerable delay.	<input type="radio"/> True <input type="radio"/> False
54	N5	When he/she listens to others, he/she sometimes loses track of his/her thoughts.	<input type="radio"/> True <input type="radio"/> False
55	N3	Others say that his/her body odor is bad.	<input type="radio"/> True <input type="radio"/> False

			False
56	P2	Sometimes he/she believes that individuals on the unit are in fact FBI workers.	<input type="radio"/> True <input type="radio"/> False
57	N4	He/She does not have friends.	<input type="radio"/> True <input type="radio"/> False
58	N2	Sometimes he/she cannot finish the sentence he/she just started.	<input type="radio"/> True <input type="radio"/> False
59	N5	Others say that he/she is not attentive to his/her surroundings.	<input type="radio"/> True <input type="radio"/> False
60	N3	Others say that he/she “spreads around” bad smells.	<input type="radio"/> True <input type="radio"/> False
61	P1	Sometimes he/she hears strange voices.	<input type="radio"/> True <input type="radio"/> False
62	N4	He/She has difficulty starting a conversation with other people.	<input type="radio"/> True <input type="radio"/> False
63	P2	He/She reports that people broadcast thoughts inside his/her head.	<input type="radio"/> True <input type="radio"/> False
64	P2	He/She reports that people from outer space control his/her thoughts.	<input type="radio"/> True <input type="radio"/> False
65	P3	Others say that his/her clothes are not tidy.	<input type="radio"/> True <input type="radio"/> False
66	N4	If he/she were invited to a party, he/she would go to it.	<input type="radio"/> True <input type="radio"/> False
67	P4	He/She has difficulty explaining him/herself.	<input type="radio"/> True <input type="radio"/> False
68	P5	Sometimes others do not understand why he/she laughs.	<input type="radio"/> True <input type="radio"/> False

Appendix D

McEvoy Scale

The subjects are asked to rate each vignette on a 5 point scale; 1= very much like me, 3= somewhat like me, 5= not like me at all.

1. It was hard for him to maintain his concentration. Sometimes lots of things would crowd into his mind in a big jumble, and he would lose his train of thought. Noises or lights would easily distract him. Sometimes he realized how many things were connected in so many ways and that became confusing—other people could not see some of the connections. Sometimes when a lot was going on it was simply too much and his thoughts would just stop for a while; he would go into a daze.

1 2 3 4 5

2. He began to notice people talking or why they talked about him. People talked about him in many different places and he gradually became used to it. Sometimes at night they would be outside his window or in the next apartment. Sometimes it was almost like telepathy. Sometimes they said very nasty things.

1 2 3 4 5

3. It became very clear to him that something was definitely going on. They had singled him out and they meant to cause him trouble. Some very powerful people intended to harm him, and these people left clues everywhere in order to threaten and worry him. He had to be very cautious because these people seemed to know an incredible amount about him. Perhaps they were secretly monitoring him.

1 2 3 4 5

4. He had some very surprising experiences. People seemed able to know about his thoughts. He would just think about a topic and, next thing, they would broadcast that very topic over the radio or the TV. People on the street would signal that they knew what he was thinking. Sometimes signals appeared in things he was reading that showed how much they knew about him. Sometimes these people would put their thoughts into his mind. That felt strange.

1 2 3 4 5

5. He does not have much energy. He sleeps a lot and, when up, is quite satisfied to sit around not doing much. He does little or nothing spontaneously, on his own initiative. He has to be asked or told to do things, even simple things like taking a bath or putting on clean clothes. Even if he begins a task, he is soon worn out and stops. It is tough to finish things.

1 2 3 4 5

1 **2** **3** **4** **5**

1 2 3 4 5

1 **2** **3** **4** **5**

Appendix E

Informed Consent Statement Participant

Dear Participant:

The purpose of the present study is to collect data for the usefulness of a new questionnaire. The questionnaire is called the Positive and Negative Symptom questionnaire, and it assesses the positive and negative symptoms of schizophrenia. You have been asked to participate in the study because you have been diagnosed with schizophrenia. Your participation will be limited to one session lasting approximately 20 minutes. Someone who knows you will also be asked to complete the same questionnaire so that we may be able to compare your responses to theirs.

Please be aware that you are not required to participate in this research and you may discontinue your participation at any time without penalty. You may also omit any items on the questionnaire you prefer not to answer. Some of the questions might be potentially upsetting. You may choose to decline answering any questions that you find offensive in any way.

There are minimal risks associated with responding to the questionnaire. Your name will not appear anywhere on the form, so everything will be completely anonymous. Only the investigators will have access to your signed consent form and your responses can never be linked back to you. Your participation in this study is completely voluntary; at any time, you may withdraw from participation without penalty.

Although your participation in this study offers no direct benefits to you, many people find it interesting to observe what a research experiment is like.

At this time you may ask any questions you have about the research or discuss any issues with your interviewer. In addition, you may contact Jaime Deyling at (216) 687-3718, email: j.l.deyling@csuohio.edu, or Dr. Amir Poreh at (216) 687-3718, email: a.poreh@csuohio.edu. Finally, if you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630. There are two copies of this letter. After signing them, please return one copy and keep the other for your records. Thank you in advance for your participation and support.

Please indicate your agreement to participate by signing below.

I am 18 years or older and have read and understood this consent form and agree to participate.

Signed name

Date

Printed Name

Signature of Researcher

Appendix F

Questionnaire testing knowledge of the study

The study involves the use of questionnaires? Yes____ No____

I realize that my personal information will remain confidential Yes____ No____

The study involves the use of medication? Yes____ No____

I will be able to ask at any time to stop the study? Yes____ No____

I realize that participating in this study will not effect my treatment? Yes____ No____

I can stop participating in the study if I wish to do so? Yes____ No____

Appendix G

Informed Consent Statement Informant

Dear Participant:

The purpose of the present study is to collect data for validation of a new questionnaire for the assessment of symptoms. Your participation will be limited to one session lasting approximately 20 minutes. In this session you will be asked to complete a questionnaire regarding a patient you know.

Please be aware that you are not required to participate in this research and you may discontinue your participation at any time without penalty. You may also omit any items on the questionnaire you prefer not to answer.

There are minimal risks associated with responding to the questionnaire. Your name will not appear anywhere on the form, so everything will be completely anonymous. Only the investigators will have access to your signed consent form and your responses can never be linked back to you. Your participation in this study is completely voluntary; at any time, you may withdraw from participation without penalty.

Although your participation in this study offers no direct benefits to you, many people find it interesting to observe what a research experiment is like.

At this time you may ask any questions you have about the research. In addition, you may contact Jaime Deyling at (216) 687-3718, email: j.l.deyling@csuohio.edu, or Dr. Amir Poreh at (216) 687-3718, email: a.poreh@csuohio.edu. Should you need further assistance, you may schedule an appointment at the CSU Counseling and Testing Center by calling (216) 687-

2277. Finally, if you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

There are two copies of this letter. After signing them, please return one copy and keep the other for your records. Thank you in advance for your participation and support.

Please indicate your agreement to participate by signing below.

I am 18 years or older and have read and understood this consent form and agree to participate.

Signed name

Printed Name